# 03-13-PCT SEQ LIST.ST25 SEQUENCE LISTING

| <110> Sanofi Past<br>Therion Bid                       | teur<br>ologics, Inc.   |
|--|---|
|  | EA/B7 Vector  |
| <130> API-03-13-                                       | PCT-US  |
| <140> 10/575,060<br><141> 2004-10-06                   |   |
| <150> PCT/US2004,<br><151> 2004-10-06                  |   |
| <150> 60/509,593<br><151> 2003-10-08                   |   |
| <160> 14   |   |
| <170> PatentIn v                                       | ersion 3.3  |
| <210> 1<br><211> 2106<br><212> DNA<br><213> Homo sapie | ens   |
| <223> mCEA codin                                       | g sequence  |
| <400> 1<br>atggagtctc cctcgg                           | cccc tccccacaga tggtgcatcc cctggcagag gctcctgctc 60             |
| acagcctcac ttctaa                                      | cctt ctggaacccg cccaccactg ccaagctcac tattgaatcc 120            |
| acgccgttca atgtcg                                      | caga ggggaaggag gtgcttctac ttgtccacaa tctgccccag 180            |
| catctttttg gctaca                                      | gctg gtacaaaggt gaaagagtgg atggcaaccg tcaaattata 240            |
| ggatatgtaa taggaa                                      | ctca acaagctacc ccagggcccg catacagtgg tcgagagata 300            |
| atatacccca atgcat                                      | ccct gctgatccag aacatcatcc agaatgacac aggattctac 360            |
| accctacacg tcataa                                      | agtc agatcttgtg aatgaagaag caactggcca gttccgggta 420            |
| tacccggagc tgccca                                      | agcc ctccatctcc agcaacaact ccaaacccgt ggaggacaag 480            |
| gatgctgtgg ccttca                                      | cctg tgaacctgag actcaggacg caacctacct gtggtgggta 540            |
| aacaatcaga gcctcc                                      | cggt cagtcccagg ctgcagctgt ccaatggcaa caggaccctc 600            |
| actctattca atgtca                                      | caag aaatgacaca gcaagctaca aatgtgaaac ccagaaccca 660            |
| gtgagtgcca ggcgca                                      | gtga ttcagtcatc ctgaatgtcc tctatggccc ggatgccccc 720            |
| accatttccc ctctaa                                      | acac atcttacaga tcaggggaaa atctgaacct ctcctgccac 780            |
| gcagcctcta acccac                                      | ctgc acagtactct tggtttgtca atgggacttt ccagcaatcc 840            |
| acccaagagc tcttta                                      | etccc caacatcact gtgaataata gtggatccta tacgtgccaa 900           |
| gcccataact cagaca                                      | actgg cctcaatagg accacagtca cgacgatcac agtctatgag 960           |
| ccacccaaac ccttca                                      | tcac cagcaacaac tccaaccccg tggaggatga ggatgctgta 1020<br>Page 1 |

| gccttaacct                                    | gtgaacctga | gattcagaac | acaacctacc | tgtggtgggt | aaataatcag | 1080 |
|---|------------|------------|------------|------------|------------|------|
| agcctcccgg                                    | tcagtcccag | gctgcagctg | tccaatgaca | acaggaccct | cactctactc | 1140 |
| agtgtcacaa                                    | ggaatgatgt | aggaccctat | gagtgtggaa | tccagaacga | attaagtgtt | 1200 |
| gaccacagcg                                    | acccagtcat | cctgaatgtc | ctctatggcc | cagacgaccc | caccatttcc | 1260 |
| ccctcataca                                    | cctattaccg | tccaggggtg | aacctcagcc | tctcctgcca | tgcagcctct | 1320 |
| aacccacctg                                    | cacagtattc | ttggctgatt | gatgggaaca | tccagcaaca | cacacaagag | 1380 |
| ctctttatct                                    | ccaacatcac | tgagaagaac | agcggactct | atacctgcca | ggccaataac | 1440 |
| tcagccagtg                                    | gccacagcag | gactacagtc | aagacaatca | cagtctctgc | ggagctgccc | 1500 |
| aagccctcca                                    | tctccagcaa | caactccaaa | cccgtggagg | acaaggatgc | tgtggccttc | 1560 |
| acctgtgaac                                    | ctgaggctca | gaacacaacc | tacctgtggt | gggtaaatgg | tcagagcctc | 1620 |
| ccagtcagtc                                    | ccaggctgca | gctgtccaat | ggcaacagga | ccctcactct | attcaatgtc | 1680 |
| acaagaaatg                                    | acgcaagagc | ctatgtatgt | ggaatccaga | actcagtgag | tgcaaaccgc | 1740 |
| agtgacccag                                    | tcaccctgga | tgtcctctat | gggccggaca | ccccatcat  | ttcccccca  | 1800 |
| gactcgtctt                                    | acctttcggg | agcggacctc | aacctctcct | gccactcggc | ctctaaccca | 1860 |
| tccccgcagt                                    | attcttggcg | tatcaatggg | ataccgcagc | aacacacaca | agttctcttt | 1920 |
| atcgccaaaa                                    | tcacgccaaa | taataacggg | acctatgcct | gttttgtctc | taacttggct | 1980 |
| actggccgca                                    | ataattccat | agtcaagagc | atcacagtct | ctgcatctgg | aacttctcct | 2040 |
| ggtctctcag                                    | ctggggccac | tgtcggcatc | atgattggag | tgctggttgg | ggttgctctg | 2100 |
| atatag  |            |            |            |            |            | 2106 |
|   | o sapiens  |            |            |            | ·          |      |
| <223> Pri                                     | mer 7751   |            |            |            |            |      |
| <400> 2<br>ggacggtagt                         | aggtgtatga | tggagatata | gttgggtcgt | ctgggcc    |            | 47   |
| <210> 3<br><211> 27<br><212> DNA<br><213> Hom | o sapiens  |            |            |            |            |      |
| <223> Pri                                     | mer 7760   |            |            |            |            |      |
| <400> 3 cagaatgaat                            | tatccgttga | tcactcc    |            |            |            | 27   |

<210> 4

### 03-13-PCT SEO LIST.ST25 45 <211> <212> DNA Homo sapiens <213> <223> Primer 7802 <400> cgtgacgacg attaccgtgt atgagccacc aaaaccattc ataac <210> 45 <211> <212> DNA

45

45

960

1020

<213> Homo sapiens <223> Primer 7803

<400> 5 gttatgaatg gttttggtgg ctcatacacg gtaatcgtcg tcacg

<210> 6 <211> 2106 <212> DNA <213> Homo sapiens <223> CAP(6D)-1,2 CDNA

<400> 6 atggagtctc cctcggcccc tccccacaga tggtgcatcc cctggcagag gctcctgctc 60 120 acagcctcac ttctaacctt ctggaacccg cccaccactg ccaagctcac tattgaatcc 180 acgccgttca atgtcgcaga ggggaaggag gtgcttctac ttgtccacaa tctgccccag 240 catctttttq qctacaqctq qtacaaaqqt qaaaqaqtqq atggcaaccg tcaaattata ggatatgtaa taggaactca acaagctacc ccagggcccg catacagtgg tcgagagata 300 360 atatacccca atgcatccct gctgatccag aacatcatcc agaatgacac aggattctac 420 accctacacg tcataaagtc agatcttgtg aatgaagaag caactggcca gttccgggta 480 tacccggaac tccctaagcc ttctattagc tccaataata gtaagcctgt cgaagacaaa 540 gatgccgtcg cttttacatg cgagcccgaa actcaagacg caacatatct ctggtgggtg aacaaccagt ccctgcctgt gtcccctaga ctccaactca gcaacggaaa tagaactctg 600 660 accctgttta acgtgaccag gaacgacaca gcaagctaca aatgcgaaac ccaaaatcca gtcagcgcca ggaggtctga ttcagtgatt ctcaacgtgc tttacggacc cgatgctcct 720 acaatcagcc ctctaaacac aagctataga tcaggggaaa atctgaatct gagctgtcat 780 840 gccgctagca atcctcccgc ccaatacagc tggtttgtca atggcacttt ccaacagtcc 900 acccaggaac tgttcattcc caatattacc gtgaacaata gtggatccta cacgtgccaa

gctcacaata gcgacaccgg actcaaccgc acaaccgtga cgacgattac cgtgtatgag

ccaccaaaac cattcataac tagtaacaat tctaacccag ttgaggatga ggacgcagtt

| 03-13-PCT SEQ LIST.ST25 gcattaactt gtgagccaga gattcaaaat accacttatt tatggtgggt caataaccaa | 1080 |
|---|------|
| agtttgccgg ttagcccacg cttgcagttg tctaatgata accgcacatt gacactcctg                         | 1140 |
| tccgttactc gcaatgatgt aggaccttat gagtgtggca ttcagaatga attatccgtt                         | 1200 |
| gatcactccg accctgttat ccttaatgtt ttgtatggcc cagacgaccc aactatatct                         | 1260 |
| ccatcataca cctactaccg tcccggcgtg aacttgagcc tttcttgcca tgcagcatcc                         | 1320 |
| aaccccctg cacagtactc ctggctgatt gatggaaaca ttcagcagca tactcaagag                          | 1380 |
| ttatttataa gcaacataac tgagaagaac agcggactct atacttgcca ggccaataac                         | 1440 |
| tcagccagtg gtcacagcag gactacagtt aaaacaataa ctgtttccgc ggagctgccc                         | 1500 |
| aagccctcca tctccagcaa caactccaaa cccgtggagg acaaggatgc tgtggccttc                         | 1560 |
| acctgtgaac ctgaggctca gaacacaacc tacctgtggt gggtaaatgg tcagagcctc                         | 1620 |
| ccagtcagtc ccaggctgca gctgtccaat ggcaacagga ccctcactct attcaatgtc                         | 1680 |
| acaagaaatg acgcaagagc ctatgtatgt ggaatccaga actcagtgag tgcaaaccgc                         | 1740 |
| agtgacccag tcaccctgga tgtcctctat gggccggaca cccccatcat ttcccccca                          | 1800 |
| gactcgtctt acctttcggg agcggacctc aacctctcct gccactcggc ctctaaccca                         | 1860 |
| tccccgcagt attcttggcg tatcaatggg ataccgcagc aacacacac agttctcttt                          | 1920 |
| atcgccaaaa tcacgccaaa taataacggg acctatgcct gttttgtctc taacttggct                         | 1980 |
| actggccgca ataattccat agtcaagagc atcacagtct ctgcatctgg aacttctcct                         | 2040 |
| ggtctctcag ctggggccac tgtcggcatc atgattggag tgctggttgg ggttgctctg                         | 2100 |
| atatag  | 2106 |
| <210> 7<br><211> 35<br><212> DNA<br><213> Homo sapiens                                    |      |
| <223> Primer 8034LZ   |      |
| <400> 7 ctggcgcgcc ttctttattc tatacttaaa aagtg  | 35   |
| <210> 8<br><211> 36<br><212> DNA<br><213> Homo sapiens                                    |      |
| <223> Primer 8035LZ   |      |
| <400> 8 ctggtaccag aaaaactata tcagagcaac cccaac   | 36   |
| <210> 9 <211> 26  |      |

|                                  |                          |               | 115        | -   1   1   1   1   1   1   1   1 | 1 1 5 1 2 3 |            |      |
|----------------------------------|--------------------------|---------------|------------|-----------------------------------|-------------|------------|------|
| <212><br><213>                   | DNA<br>Homo              | sapiens       |            | -13-PC1 SEQ                       | 2131.3123   |            |      |
| <223>                            | Prin                     | ner 7569LZ    |            |                                   |             |            |      |
| <400><br>ttggate                 | 9<br>ccat                | ggagtctccc    | tcggcc     |                                   |             |            | 26   |
| <210><br><211><br><212><br><213> | 10<br>26<br>DNA<br>Homo  | o sapiens     |            |                                   |             |            |      |
| <223>                            | Prin                     | ner 7570LZ    |            |                                   |             |            |      |
| <400><br>ttggate                 | 10<br>ccct               | atatcagagc    | aacccc     |                                   |             |            | 26   |
| <210><br><211><br><212><br><213> | 11<br>2269<br>DNA<br>Avi | )<br>poxvirus |            |                                   |             |            |      |
| <223>                            | ALV                      | AC-Figure 12  | 2          |                                   |             |            |      |
| <400><br>ttagat                  | 11<br>tgtg               | ttattcatta    | catagacgct | gctaaatcta                        | ctatcgattt  | agagatagta | 60   |
| tctcta                           | ctac                     | ccacaaaaag    | aactaaagac | gccatagtgt                        | actggcctat  | aataaaagac | 120  |
| gcgttg                           | ataa                     | gagctgttct    | ggaacgtggt | gttaaactta                        | gaatactact  | aggttattgg | 180  |
| aaaaag                           | accg                     | atattatctc    | taaagcttct | atcaaaagtc                        | ttaatgagtt  | aggtgtagat | 240  |
| agtata                           | gata                     | ttactacaaa    | ggtattcata | tttcctatca                        | attctaaagt  | agatgatatt | 300  |
| aataac                           | tçaa                     | agatgatgat    | agtagataat | agatacgctc                        | atataatgac  | tgcaaatttg | 360  |
| gacggt                           | tcac                     | attttaatca    | tcacgcgttc | ataagtctca                        | actgcataga  | tcaaaatctc | 420  |
| actaaa                           | aaga                     | tagccgatgt    | atttgagaga | gattggacat                        | ctaactacgc  | taaagaaatt | 480  |
| acagtt                           | ataa                     | ataatacata    | atggattttg | ttatcatcag                        | ttatatttaa  | cataagtaca | 540  |
| ataaaa                           | agta                     | ttaaataaaa    | atacttactt | acgaaaaaat                        | gactaattag  | ctataaaaac | 600  |
| ccgggt                           | taat                     | taattagtta    | ttagacaagg | tgaaaacgaa                        | actatttgta  | gcttaattaa | 660  |
| ttagag                           | cttc                     | tttattctat    | acttaaaaag | tgaaaataaa                        | tacaaaggtt  | cttgagggtt | 720  |
| gtgtta                           | aatt                     | gaaagcgaga    | aataatcata | aattatttca                        | ttatcgcgat  | atccgttaag | 780  |
| tttgta                           | tcgt                     | aatgggccac    | acacggaggc | agggaacatc                        | accatccaag  | tgtccatacc | 840  |
| tcaatt                           | tctt                     | tcagctcttg    | gtgctggctg | gtctttctca                        | cttctgttca  | ggtgttatcc | 900  |
| acgtga                           | ccaa                     | ggaagtgaaa    | gaagtggcaa | cgctgtcctg                        | tggtcacaat  | gtttctgttg | 960  |
| aagagc                           | tggc                     | acaaactcgc    | atctactggc | aaaaggagaa                        | gaaaatggtg  | ctgactatga | 1020 |
| tgtctg                           | gaga                     | catgaatata    | tggcccgagt | acaagaaccg<br>Page                |             | gatatcacta | 1080 |

| ataacctctc                                      | cattgtgatc  | ctggctctgc  | gcccatctga         | cgagggcaca | tacgagtgtg | 1140 |
|---|-------------|-------------|--------------------|------------|------------|------|
| ttgttctgaa                                      | gtatgaaaaa  | gacgctttca  | agcgggaaca         | cctggctgaa | gtgacgttat | 1200 |
| cagtcaaagc                                      | tgacttccct  | acacctagta  | tatctgactt         | tgaaattcca | acttctaata | 1260 |
| ttagaaggat                                      | aatttgctca  | acctctggag  | gttttccaga         | gcctcacctc | tcctggttgg | 1320 |
| aaaatggaga                                      | agaattaaat  | gccatcaaca  | caacagtttc         | ccaagatcct | gaaactgagc | 1380 |
| tctatgctgt                                      | tagcagcaaa  | ctggatttca  | atatgacaac         | caaccacagc | ttcatgtgtc | 1440 |
| tcatcaagta                                      | tggacattta  | agagtgaatc  | agaccttcaa         | ctggaataca | accaagcaag | 1500 |
| agcattttcc                                      | tgataacctg  | ctcccatcct  | gggccattac         | cttaatctca | gtaaatggaa | 1560 |
| ttttcgtgat                                      | atgctgcctg  | acctactgct  | ttgccccacg         | ctgcagagag | agaaggagga | 1620 |
| atgagagatt                                      | gagaagggaa  | agtgtacgtc  | ctgtataatt         | tttatctcga | gcccgggaag | 1680 |
| cttgaattct                                      | ttttattgat  | taactagtca  | aatgagtata         | tataattgaa | aaagtaaaat | 1740 |
| ataaatcata                                      | taataatgaa  | acgaaatatc  | agtaatagac         | aggaactggc | agattcttct | 1800 |
| tctaatgaag                                      | taagtactgc  | taaatctcca  | aaattagata         | aaaatgatac | agcaaataca | 1860 |
| gcttcattca                                      | acgaattacc  | ttttaatttt  | ttcagacaca         | ccttattaca | aactaactaa | 1920 |
| gtcagatgat                                      | gagaaagtaa  | atataaattt  | aacttatggg         | tataatataa | taaagattca | 1980 |
| tgatattaat                                      | aatttactta  | acgatgttaa  | tagacttatt         | ccatcaaccc | cttcaaacct | 2040 |
| ttctggatat                                      | tataaaatac  | cagttaatga  | tattaaaata         | gattgtttaa | gagatgtaaa | 2100 |
| taattatttg                                      | gaggtaaagg  | atataaaatt  | agtctatctt         | tcacatggaa | atgaattacc | 2160 |
| taatattaat                                      | aattatgata  | ggaattttt   | aggatttaca         | gctgttatat | gtatcaacaa | 2220 |
| tacaggcaga                                      | tctatggtta  | tggtaaaaca  | ctgtaacggg         | aagcagcat  |            | 2269 |
| <210> 12<br><211> 226<br><212> DNA<br><213> Avi |             |             |                    |            |            |      |
| <223> ALV                                       | AC-Figure 1 | 2 Antisense |                    |            |            |      |
| <400> 12<br>aatctaacac                          | aataagtaat  | gtatctgcga  | cgatttagat         | gatagctaaa | tctctatcat | 60   |
| agagatgatg                                      | ggtgttttc   | ttgatttctg  | cggtatcaca         | tgaccggata | ttattttctg | 120  |
| cgcaactatt                                      | ctcgacaaga  | ccttgcacca  | caatttgaat         | cttatgatga | tccaataacc | 180  |
| tttttctggc                                      | tataatagag  | atttcgaaga  | tagttttcag         | aattactcaa | tccacatcta | 240  |
| tcatatctat                                      | aatgatgttt  | ccataagtat  | aaaggatagt         | taagatttca | tctactataa | 300  |
| ttattgagtt                                      | tctactacta  | tcatctatta  | tctatgcgag         | tatattactg | acgtttaaac | 360  |
| ctgccaagtg                                      | taaaattagt  | agtgcgcaag  | tattcaaagt<br>Page |            | agttttagag | 420  |

| tgatttttct | atcggctaca | taaactctct | ctaacctgta | gattgatgcg | atttctttaa | 480  |
|------------|------------|------------|------------|------------|------------|------|
| tgtcaatatt | tattatgtat | tacctaaaac | aatagtagtc | aatataaatt | gtattcatgt | 540  |
| tatttttcat | aatttattt  | tatgaatgaa | tgctttttta | ctgattaatc | gatatttttg | 600  |
| ggcccaatta | attaatcaat | aatctgttcc | acttttgctt | tgataaacat | cgaattaatt | 660  |
| aatctcgaag | aaataagata | tgaatttttc | acttttattt | atgtttccaa | gaactcccaa | 720  |
| cacaatttaa | ctttcgctct | ttattagtat | ttaataaagt | aatagcgcta | taggcaattc | 780  |
| aaacatagca | ttacccggtg | tgtgcctccg | tcccttgtag | tggtaggttc | acaggtatgg | 840  |
| agttaaagaa | agtcgagaac | cacgaccgac | cagaaagagt | gaagacaagt | ccacaatagg | 900  |
| tgcactggtt | ccttcacttt | cttcaccgtt | gcgacaggac | accagtgtta | caaagacaac | 960  |
| ttctcgaccg | tgtttgagcg | tagatgaccg | ttttcctctt | cttttaccac | gactgatact | 1020 |
| acagacctct | gtacttatat | accgggctca | tgttcttggc | ctggtagaaa | ctatagtgat | 1080 |
| tattggagag | gtaacactag | gaccgagacg | cgggtagact | gctcccgtgt | atgctcacac | 1140 |
| aacaagactt | catacttttt | ctgcgaaagt | tcgcccttgt | ggaccgactt | cactgcaata | 1200 |
| gtcagtttcg | actgaaggga | tgtggatcat | atagactgaa | actttaaggt | tgaagattat | 1260 |
| aatcttccta | ttaaacgagt | tggagacctc | caaaaggtct | cggagtggag | aggaccaacc | 1320 |
| ttttacctct | tcttaattta | cggtagttgt | gttgtcaaag | ggttctagga | ctttgactcg | 1380 |
| agatacgaca | atcgtcgttt | gacctaaagt | tatactgttg | gttggtgtcg | aagtacacag | 1440 |
| agtagttcat | acctgtaaat | tctcacttag | tctggaagtt | gaccttatgt | tggttcgttc | 1500 |
| tcgtaaaagg | actattggac | gagggtagga | cccggtaatg | gaattagagt | catttacctt | 1560 |
| aaaagcacta | tacgacggac | tggatgacga | aacggggtgc | gacgtctctc | tcttcctcct | 1620 |
| tactctctaa | ctcttccctt | tcacatgcag | gacatattaa | aaatagagct | cgggcccttc | 1680 |
| gaacttaaga | aaaataacta | attgatcagt | ttactcatat | atattaactt | tttcatttta | 1740 |
| tatttagtat | attattactt | tgctttatag | tcattatctg | tccttgaccg | tctaagaaga | 1800 |
| agattacttc | attcatgacg | atttagaggt | tttaatctat | ttttactatg | tcgtttatgt | 1860 |
| cgaagtaagt | tgcttaatgg | aaaattaaaa | aagtctgtgt | ggaataatgt | ttgattgatt | 1920 |
| cagtctacta | ctctttcatt | tatatttaaa | ttgaataccc | atattatatt | atttctaagt | 1980 |
| actataatta | ttaaatgaat | tgctacaatt | atctgaataa | ggtagttggg | gaagtttgga | 2040 |
| aagacctata | atattttatg | gtcaattact | ataattttat | ctaacaaatt | ctctacattt | 2100 |
| attaataaac | ctccatttcc | tatattttaa | tcagatagaa | agtgtacctt | tacttaatgg | 2160 |
| attataatta | ttaatactat | ccttaaaaaa | tcctaaatgt | cgacaatata | catagttgtt | 2220 |
| atgtccgtct | agataccaat | accattttgt | gacattgccc | ttcgtcgta  |            | 2269 |

- <210> 13 <211> 5259 <212> DNA
- <213> Avipoxvirus
- <223> ALVAC-Figure 13

<400> 13 60 atattattaa aactattaga taacatagct ttatgtaaag gagtatttcc agataactta gctttagcat ttacgtaagc accgtggtca agtaagagtt taacaaattc tgttttcata 120 gaactaactg ccatgtatag aggagtgaaa cctttatgat tatagacgtt tacatagcaa 180 240 ccatataata agatcqcatt caqtatatta atatctttca tttctatagc tatgtgaata 300 acatgtttat ctaatcctac caactttgta tcagtaccgt acttcagtaa taagtttact atagttttgt ttttagatgc aacagctata tttagaacgg tatctatatg attattaacc 360 420 acattaacat tagatcctct ttctaaaagt gtctttgttg tttcgatatc gttacgtgaa acagcqtaat qtaaqqqact qcccatacaq tcatctatta cqtttatatq aqctcctaga 480 540 tttaacagaa gtgctgttac atcttttctt ctattaatta ccgaatgatg taatggggtt 600 ttacctaaat catcttqttc qtttataggc actccqtgat ttataagtaa cgctattata tcgtaactac aattatttt aagtgccttt atgagatact gtttatgcaa aaataaactt 660 720 ttatctattt taatactatt atctaacaat atcctaatta aatctatatt cttatacttt 780 atagcgtaat gtaacggagt ttcaaaattt ctagtttgta tattaagatc aatattaaaa 840 tctataaata ttttatacat atcatcagat atcttatcat acagtacatc gtaataattt 900 agaaagaatc tattacaatt aacacctttt tttaataaat atctagttaa tgacttattg tttctatata cagaaatata taacqqacta tttccagaat gtatctgttc tatgtcagcg 960 1020 ccaqaatcta ttaqtaqttt aqcaatttct qtattatcta aactagcagc tttatgaaga 1080 ggaggatttt tacattttaa aatatcggca ccgtgttcta gtaataattt taccatttct atatcagaaa tacttacggc taaatacaaa gacgttgata gtatatttac gttattgtat 1140 ttgcattttt taagtatata ccttactaaa tttatatctc tataccttat agctttatgc 1200 1260 agttcattta taagtcttcc attactcatt tctggtaatg aagtattata tatcattatg atattatctc tattttattc taataaaaac cgttatcatg ttatttatta tttgttataa 1320 ttatactatt taataaatta taccaaatac ttagatactt attaatacca tcctagaact 1380 tgtatttctt gccccctaaa cttggacatg cactccatta ggcgtttctt gttttcgaca 1440 1500 tcqtcctcct taacatatcc tactgttatg tgaggattcc acggattatc tactgtgata tcaccaaaca cqtccttcqa acaqqqtacc qcattcagca gaacatttct tagggctcta 1560 agttcatcag atacctccag tttcataact acagcgcatc ctttcgctcc caactgttta 1620

|            |            | •                |                           |            |            |      |
|------------|------------|------------------|---------------------------|------------|------------|------|
| gaggcgttac | tgtgaggaaa | 03<br>acacatctct | -13-PCT SEQ<br>tctttacaga |            | agtctgtaaa | 1680 |
| tcttgatcag | ttatttgctt | tttgaaattt       | tcaaatctat                | cacattgatc | catatttgct | 1740 |
| attccaagag | ttatatgagg | aaaaatatca       | catcctgtca                | tgtattttat | tgtaacatta | 1800 |
| ttataatctg | taacatcagt | atctaaccta       | acgtcgtaaa                | agttaacaga | tgcccagtta | 1860 |
| ctataatccc | aaggaacctt | aacatctaat       | cccattaaaa                | tagtatcctt | tctactattt | 1920 |
| ttttcattgg | caagtatgtg | gcttagttta       | cacaaaattc                | ctgccatttt | gtaacgatag | 1980 |
| cgaagcaata | gcttgtatgc | tttttatttg       | attaactagt                | cataaaaatc | gggatccttc | 2040 |
| tttattctat | acttaaaaag | tgaaaataaa       | tacaaaggtt                | cttgagggtt | gtgttaaatt | 2100 |
| gaaagcgaga | aataatcata | aattatttca       | ttatcgcgat                | atccgttaag | tttgtatcgt | 2160 |
| aatggagtct | ccctcggccc | ctccccacag       | atggtgcatc                | ccctggcaga | ggctcctgct | 2220 |
| cacagcctca | cttctaacct | tctggaaccc       | gcccaccact                | gccaagctca | ctattgaatc | 2280 |
| cacgccgttc | aatgtcgcag | aggggaagga       | ggtgcttcta                | cttgtccaca | atctgcccca | 2340 |
| gcatctttt  | ggctacagct | ggtacaaagg       | tgaaagagtg                | gatggcaacc | gtcaaattat | 2400 |
| aggatatgta | ataggaactc | aacaagctac       | cccagggccc                | gcatacagtg | gtcgagagat | 2460 |
| aatatacccc | aatgcatccc | tgctgatcca       | gaacatcatc                | cagaatgaca | caggattcta | 2520 |
| caccctacac | gtcataaagt | cagatcttgt       | gaatgaagaa                | gcaactggcc | agttccgggt | 2580 |
| atacccggaa | ctccctaagc | cttctattag       | ctccaataat                | agtaagcctg | tcgaagacaa | 2640 |
| agatgccgtc | gcttttacat | gcgagcccga       | aactcaagac                | gcaacatatc | tctggtgggt | 2700 |
| gaacaaccag | tccctgcctg | tgtcccctag       | actccaactc                | agcaacggaa | atagaactct | 2760 |
| gaccctgttt | aacgtgacca | ggaacgacac       | agcaagctac                | aaatgcgaaa | cccaaaatcc | 2820 |
| agtcagcgcc | aggaggtctg | attcagtgat       | tctcaacgtg                | ctttacggac | ccgatgctcc | 2880 |
| tacaatcagc | cctctaaaca | caagctatag       | atcaggggaa                | aatctgaatc | tgagctgtca | 2940 |
| tgccgctagc | aatcctcccg | cccaatacag       | ctggtttgtc                | aatggcactt | tccaacagtc | 3000 |
| cacccaggaa | ctgttcattc | ccaatattac       | cgtgaacaat                | agtggatcct | acacgtgcca | 3060 |
| agctcacaat | agcgacaccg | gactcaaccg       | cacaaccgtg                | acgacgatta | ccgtgtatga | 3120 |
| gccaccaaaa | ccattcataa | ctagtaacaa       | ttctaaccca                | gttgaggatg | aggacgcagt | 3180 |
| tgcattaact | tgtgagccag | agattcaaaa       | taccacttat                | ttatggtggg | tcaataacca | 3240 |
| aagtttgccg | gttagcccac | gcttgcagtt       | gtctaatgat                | aaccgcacat | tgacactcct | 3300 |
| gtccgttact | cgcaatgatg | taggacctta       | tgagtgtggc                | attcagaatg | aattatccgt | 3360 |
| tgatcactcc | gaccctgtta | tccttaatgt       | tttgtatggc                | ccagacgacc | caactatatc | 3420 |
| tccatcatac | acctactacc | gtcccggcgt       | gaacttgagc                | ctttcttgcc | atgcagcatc | 3480 |
| caacccccct | gcacagtact | cctggctgat       | tgatggaaac<br>Page        |            | atactcaaga | 3540 |
|            |            |                  |                           |            |            |      |

| gttatttata | agcaacataa | ctgagaagaa | cagcggactc | tatacttgcc | aggccaataa | 3600 |
|------------|------------|------------|------------|------------|------------|------|
| ctcagccagt | ggtcacagca | ggactacagt | taaaacaata | actgtttccg | cggagctgcc | 3660 |
| caagccctcc | atctccagca | acaactccaa | acccgtggag | gacaaggatg | ctgtggcctt | 3720 |
| cacctgtgaa | cctgaggctc | agaacacaac | ctacctgtgg | tgggtaaatg | gtcagagcct | 3780 |
| cccagtcagt | cccaggctgc | agctgtccaa | tggcaacagg | accctcactc | tattcaatgt | 3840 |
| cacaagaaat | gacgcaagag | cctatgtatg | tggaatccag | aactcagtga | gtgcaaaccg | 3900 |
| cagtgaccca | gtcaccctgg | atgtcctcta | tgggccggac | acccccatca | tttcccccc  | 3960 |
| agactcgtct | tacctttcgg | gagcgaacct | caacctctcc | tgccactcgg | cctctaaccc | 4020 |
| atccccgcag | tattcttggc | gtatcaatgg | gataccgcag | caacacacac | aagttctctt | 4080 |
| tatcgccaaa | atcacgccaa | ataataacgg | gacctatgcc | tgttttgtct | ctaacttggc | 4140 |
| tactggccgc | aataattcca | tagtcaagag | catcacagtc | tctgcatctg | gaacttctcc | 4200 |
| tggtctctca | gctggggcca | ctgtcggcat | catgattgga | gtgctggttg | gggttgctct | 4260 |
| gatatagttt | ttatctcgag | gaattcctgc | agcccgggtt | tttatagcta | attagtcaaa | 4320 |
| tgtgagttaa | tattagtata | ctacattact | aatttattac | atattcattt | atatcaatct | 4380 |
| agtagcattt | agcttttata | aaacaatata | actgaatagt | acatacttta | ctaataagtt | 4440 |
| ataaataaga | gatacatatt | tatagtattt | tactttctac | actgaatata | ataatataat | 4500 |
| tatacaaata | taatttttaa | tactatatag | tatataactg | aaataaaata | ccagtgtaat | 4560 |
| atagttatta | tacatttata | ccacatcaaa | gatgagttat | aacatcagtg | tcactgttag | 4620 |
| caacagtagt | tatacgatga | gtagttactc | tcgtatggcg | ttagtatgta | tgtatcttct | 4680 |
| agttttctta | gtaggcatta | taggaaacgt | caagcttata | aggttattaa | tggtatctag | 4740 |
| aaatatatct | attataccgt | ttctcaactt | gggaatagcc | gatttgctgt | ttgtgatatt | 4800 |
| cataccttta | tacattatat | acatactaag | taatttccat | tggcattttg | gtaaagcact | 4860 |
| ttgtaaaatt | agttctttct | tttttacttc | taacatgttt | gcaagtatat | ttttaataac | 4920 |
| tgtaataagc | gtatatagat | atgtaaaaat | tacccttcct | ggatttacct | ataaatatgt | 4980 |
| taacattaga | aatatgtaca | ttactatatt | tttcatatgg | attatttcta | ttatactagg | 5040 |
| gattcctgct | ctttacttta | gaaatactat | cgtaacaaaa | aataacgaca | cgctgtgtat | 5100 |
| taatcattat | catgataata | gagaaattgc | tgaattgatt | tacaaagtta | ttatctgtat | 5160 |
| cagatttatt | ttaggatacc | tactacctac | gataattata | ctcgtatgct | atacgttact | 5220 |
| gatctacaga | actaacaatg | catgtcgacg | cggccgcaa  |            |            | 5259 |
|            |            |            |            |            |            |      |

<sup>&</sup>lt;210> 14 <211> 5259 <212> DNA

<213> Avipoxvirus

### <223> ALVAC-Figure 13 Antisense

<400> 60 tataataatt ttgataatct attgtatcga aatacatttc ctcataaagg tctattgaat cgaaatcgta aatgcattcg tggcaccagt tcattctcaa attgtttaag acaaaagtat 120 cttgattgac ggtacatatc tcctcacttt ggaaatacta atatctgcaa atgtatcgtt 180 240 ggtatattat tctagcgtaa gtcatataat tatagaaagt aaagatatcg atacacttat tgtacaaata gattaggatg gttgaaacat agtcatggca tgaagtcatt attcaaatga 300 tatcaaaaca aaaatctacg ttgtcgatat aaatcttgcc atagatatac taataattgg 360 tgtaattgta atctaggaga aagattttca cagaaacaac aaagctatag caatgcactt 420 tgtcgcatta cattccctga cgggtatgtc agtagataat gcaaatatag tcgaggatct 480 540 aaattgtctt cacgacaatg tagaaaagaa gataattaat ggcttactac attaccccaa aatggattta gtagaacaag caaatatccg tgaggcacta aatattcatt gcgataatat 600 660 agcattgatg ttaataaaaa ttcacggaaa tactctatga caaatacgtt tttatttgaa 720 aatagataaa attatgataa tagattgtta taggattaat ttagatataa gaatatgaaa tatcgcatta cattgcctca aagttttaaa gatcaaacat ataattctag ttataatttt 780 840 agatatttat aaaatatgta tagtagtcta tagaatagta tgtcatgtag cattattaaa 900 tctttcttag ataatgttaa ttgtggaaaa aaattattta tagatcaatt actgaataac aaagatatat gtctttatat attgcctgat aaaggtctta catagacaag atacagtcgc 960 1020 ggtcttagat aatcatcaaa tcgttaaaga cataatagat ttgatcgtcg aaatacttct 1080 cctcctaaaa atgtaaaatt ttatagccgt ggcacaagat cattattaaa atggtaaaga 1140 tatagtcttt atgaatgccg atttatgttt ctgcaactat catataaatg caataacata 1200 aacgtaaaaa attcatatat ggaatgattt aaatatagag atatggaata tcgaaatacg tcaagtaaat attcagaagg taatgagtaa agaccattac ttcataatat atagtaatac 1260 tataatagag ataaaataag attatttttg gcaatagtac aataaataat aaacaatatt 1320 1380 aatatqataa attatttaat atggtttatg aatctatgaa taattatggt aggatcttga acataaagaa cgggggattt gaacctgtac gtgaggtaat ccgcaaagaa caaaagctgt 1440 agcaggagga attgtatagg atgacaatac actcctaagg tgcctaatag atgacactat 1500 1560 agtggtttgt gcaggaagct tgtcccatgg cgtaagtcgt cttgtaaaga atcccgagat tcaagtagtc tatggaggtc aaagtattga tgtcgcgtag gaaagcgagg gttgacaaat 1620 ctccqcaatg agactccttt tgtgtagaga agaaatgtct gatatcttta tcagacattt 1680 1740 agaactagtc aataaacgaa aaactttaaa agtttagata gtgtaactag gtataaacga

|            |            | 03         | -13-PCT SEQ        | LTST ST25  |            |      |
|------------|------------|------------|--------------------|------------|------------|------|
| taaggttctc | aatatactcc | tttttatagt |                    |            | acattgtaat | 1800 |
| aatattagac | attgtagtca | tagattggat | tgcagcattt         | tcaattgtct | acgggtcaat | 1860 |
| gatattaggg | ttccttggaa | ttgtagatta | gggtaatttt         | atcataggaa | agatgataaa | 1920 |
| aaaagtaacc | gttcatacac | cgaatcaaat | gtgttttaag         | gacggtaaaa | cattgctatc | 1980 |
| gcttcgttat | cgaacatacg | aaaaataaac | taattgatca         | gtattttag  | ccctaggaag | 2040 |
| aaataagata | tgaatttttc | acttttattt | atgtttccaa         | gaactcccaa | cacaatttaa | 2100 |
| ctttcgctct | ttattagtat | ttaataaagt | aatagcgcta         | taggcaattc | aaacatagca | 2160 |
| ttacctcaga | gggagccggg | gaggggtgtc | taccacgtag         | gggaccgtct | ccgaggacga | 2220 |
| gtgtcggagt | gaagattgga | agaccttggg | cgggtggtga         | cggttcgagt | gataacttag | 2280 |
| gtgcggcaag | ttacagcgtc | tccccttcct | ccacgaagat         | gaacaggtgt | tagacggggt | 2340 |
| cgtagaaaaa | ccgatgtcga | ccatgtttcc | actttctcac         | ctaccgttgg | cagtttaata | 2400 |
| tcctatacat | tatccttgag | ttgttcgatg | gggtcccggg         | cgtatgtcac | cagctctcta | 2460 |
| ttatatgggg | ttacgtaggg | acgactaggt | cttgtagtag         | gtcttactgt | gtcctaagat | 2520 |
| gtgggatgtg | cagtatttca | gtctagaaca | cttacttctt         | cgttgaccgg | tcaaggccca | 2580 |
| tatgggcctt | gagggattcg | gaagataatc | gaggttatta         | tcattcggac | agcttctgtt | 2640 |
| tctacggcag | cgaaaatgta | cgctcgggct | ttgagttctg         | cgttgtatag | agaccaccca | 2700 |
| cttgttggtc | agggacggac | acaggggatc | tgaggttgag         | tcgttgcctt | tatcttgaga | 2760 |
| ctgggacaaa | ttgcactggt | ccttgctgtg | tcgttcgatg         | tttacgcttt | gggttttagg | 2820 |
| tcagtcgcgg | tcctccagac | taagtcacta | agagttgcac         | gaaatgcctg | ggctacgagg | 2880 |
| atgttagtcg | ggagatttgt | gttcgatatc | tagtcccctt         | ttagacttag | actcgacagt | 2940 |
| acggcgatcg | ttaggagggc | gggttatgtc | gaccaaacag         | ttaccgtgaa | aggttgtcag | 3000 |
| gtgggtcctt | gacaagtaag | ggttataatg | gcacttgtta         | tcacctagga | tgtgcacggt | 3060 |
| tcgagtgtta | tcgctgtggc | ctgagttggc | gtgttggcac         | tgctgctaat | ggcacatact | 3120 |
| cggtggtttt | ggtaagtatt | gatcattgtt | aagattgggt         | caactcctac | tcctgcgtca | 3180 |
| acgtaattga | acactcggtc | tctaagtttt | atggtgaata         | aataccaccc | agttattggt | 3240 |
| ttcaaacggc | caatcgggtg | cgaacgtcaa | cagattacta         | ttggcgtgta | actgtgagga | 3300 |
| caggcaatga | gcgttactac | atcctggaat | actcacaccg         | taagtcttac | ttaataggca | 3360 |
| actagtgagg | ctgggacaat | aggaattaca | aaacataccg         | ggtctgctgg | gttgatatag | 3420 |
| aggtagtatg | tggatgatgg | cagggccgca | cttgaactcg         | gaaagaacgg | tacgtcgtag | 3480 |
| gttgggggga | cgtgtcatga | ggaccgacta | actacctttg         | taagtcgtcg | tatgagttct | 3540 |
| caataaatat | tcgttgtatt | gactcttctt | gtcgcctgag         | atatgaacgg | tccggttatt | 3600 |
| gagtcggtca | ccagtgtcgt | cctgatgtca | attttgttat<br>Page |            | gcctcgacgg | 3660 |

| gttcgggagg | tagaggtcgt | tgttgaggtt | tgggcacctc | ctgttcctac | gacaccggaa | 3720 |
|------------|------------|------------|------------|------------|------------|------|
| gtggacactt | ggactccgag | tcttgtgttg | gatggacacc | acccatttac | cagtctcgga | 3780 |
| gggtcagtca | gggtccgacg | tcgacaggtt | accgttgtcc | tgggagtgag | ataagttaca | 3840 |
| gtgttcttta | ctgcgttctc | ggatacatac | accttaggtc | ttgagtcact | cacgtttggc | 3900 |
| gtcactgggt | cagtgggacc | tacaggagat | acccggcctg | tgggggtagt | aaaggggggg | 3960 |
| tctgagcaga | atggaaagcc | ctcgcttgga | gttggagagg | acggtgagcc | ggagattggg | 4020 |
| taggggcgtc | ataagaaccg | catagttacc | ctatggcgtc | gttgtgtgtg | ttcaagagaa | 4080 |
| atagcggttt | tagtgcggtt | tattattgcc | ctggatacgg | acaaaacaga | gattgaaccg | 4140 |
| atgaccggcg | ttattaaggt | atcagttctc | gtagtgtcag | agacgtagac | cttgaagagg | 4200 |
| accagagagt | cgaccccggt | gacagccgta | gtactaacct | cacgaccaac | cccaacgaga | 4260 |
| ctatatcaaa | aatagagctc | cttaaggacg | tcgggcccaa | aaatatcgat | taatcagttt | 4320 |
| acactcaatt | ataatcatat | gatgtaatga | ttaaataatg | tataagtaaa | tatagttaga | 4380 |
| tcatcgtaaa | tcgaaaatat | tttgttatat | tgacttatca | tgtatgaaat | gattattcaa | 4440 |
| tatttattct | ctatgtataa | atatcataaa | atgaaagatg | tgacttatat | tattatatta | 4500 |
| atatgtttat | attaaaaatt | atgatatatc | atatattgac | tttattttat | ggtcacatta | 4560 |
| tatcaataat | atgtaaatat | ggtgtagttt | ctactcaata | ttgtagtcac | agtgacaatc | 4620 |
| gttgtcatca | atatgctact | catcaatgag | agcataccgc | aatcatacat | acatagaaga | 4680 |
| tcaaaagaat | catccgtaat | atcctttgca | gttcgaatat | tccaataatt | accatagatc | 4740 |
| tttatataga | taatatggca | aagagttgaa | cccttatcgg | ctaaacgaca | aacactataa | 4800 |
| gtatggaaat | atgtaatata | tgtatgattc | attaaaggta | accgtaaaac | catttcgtga | 4860 |
| aacattttaa | tcaagaaaga | aaaaatgaag | attgtacaaa | cgttcatata | aaaattattg | 4920 |
| acattattcg | catatatcta | tacattttta | atgggaagga | cctaaatgga | tatttataca | 4980 |
| attgtaatct | ttatacatgt | aatgatataa | aaagtatacc | taataaagat | aatatgatcc | 5040 |
| ctaaggacga | gaaatgaaat | ctttatgata | gcattgtttt | ttattgctgt | gcgacacata | 5100 |
| attagtaata | gtactattat | ctctttaacg | acttaactaa | atgtttcaat | aatagacata | 5160 |
| gtctaaataa | aatcctatgg | atgatggatg | ctattaatat | gagcatacga | tatgcaatga | 5220 |
| ctagatgtct | tgattgttac | gtacagctgc | gccggcgtt  |            |            | 5259 |